and swelling in the hepatic region are by far the most important. Fever is present in a large proportion of cases, is intermittent in character, and except in pyæmic cases rarely rises above 102.5° or 103°. Jaundice and ascites nearly always denote the presence of dense adhesions or gall-stones. Dyspnœa and cough are frequently present.

9. It is doubtful whether absorption of the contents of an hepatic abscess ever occurs; bursting is of frequent occurrence, the most usual direction being into a bronchus or the pleural cavity. Under expectant treatment death occurs in a large proportion of cases before bursting.

10. With respect to treatment, free incision and drainage give far better results than any other mode. The results of aspiration are rarely satisfactory, nor is aspiration itself entirely free from danger.

SEROUS CYSTS IN THE CEREBELLUM.

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Cysts of various kinds are met with in the cerebellum. Thus, there are hydatid cysts, cysts due to the cysticercus cellulosæ, cysts following hemorrhage or softening, cystic tumors, and also a very rare variety of cysts—the so-called simple or serous cysts. A number of cases have been recorded in which post-mortem examination has revealed a cyst in the cerebellum containing clear fluid, and as no evidences of the first five above-mentioned causes have been detected, the cases have been described as simple or serous cysts of the cerebellum of obscure origin.

Gowers and Bastian mention these so-called simple or serous cysts; and cases have been recorded by Sharkey, Hadden, Habershon, and others. All writers on the subject have had great difficulty in explaining the origin of these cysts.

Of course, a cerebellar cyst can only be classed as a simple or serous cyst when the history and pathological examination have failed to reveal any evidence of hydatid, cysticercus cellulosæ, hemorrhage or hæmatoidin crystals, or tumor growth. The object of the present communication is to draw attention to the very great difficulty, if not impossibility, of excluding tumor as a cause of apparently simple cerebellar cysts.

Until a most careful and *minute microscopical examination of every part of the cyst-wall* has been made, one is not justified in excluding tumor and describing the case as one of simple cyst. I have recently met with two cases which seem worthy of brief record from their bearing on this point. In both cases, after careful dissection and fairly complete microscopical examination, I could detect no evidence of tumor, and looked upon them as cases of simple or serous cysts. But on further examination, though nearly the whole of the cyst-wall presented no evidence of tumor, yet at last a very small patch of new-growth was detected. How small this patch of new-growth may be, the notes on Case I. will show. In this case, nowhere, except at one spot in the cyst-wall, was any evidence of new-growth detected; and the new-growth was a minute oval glioma, measuring only $\frac{3}{32}$ of an inch by about $\frac{3}{16}$ of an inch (about 2.5 mm. by 4 mm.), in the wall of a cyst nearly the size of a pigeon's egg. Further, almost the half of this gliomatous new-growth consisted of bloodvessels. If a tumor can undergo cystic degeneration to such an extent that the only remaining new-growth shall be of the dimensions just mentioned, it does not seem improbable that in some cases the whole of the growth may disappear and only a cyst remain.

When one considers the above fact, it is evident that no cerebellar cyst can be described as a simple serous cyst until portions from *every part* of the cyst-wall have been carefully examined microscopically. It seems probable that in some of the recorded cases of simple cysts a minute portion of tumor-growth has escaped observation; and in the other cases, supposing no minute patch of new-growth has been undetected, it seems not improbable that the cases have been cystic tumors in which the cystic degeneration has been so extensive that the whole of the growth has disappeared. On looking over the clinical history of these cases of so called simple cyst we find that the symptoms have been those of cerebellar tumor—severe headache, vomiting, marked optic neuritis, staggering, etc.—and have increased until the death of the patient.

While not denying the possibility of the origin in other ways, it seems more probable that so-called simple or serous cysts have been cystic tumors in which the cystic degeneration has been so marked that the whole of the tumor-growth has disappeared, or only so minute a portion has remained that it has escaped detection.

Briefly, then, the reasons for this assumption are the following:

1. The history and symptoms have been those of cerebellar tumor.
2. Intra-cranial tumors are especially liable to undergo cystic degeneration when situated in the cerebellum.
3. So-called simple serous cysts are exceedingly rare.
4. In many cases which have been looked upon as simple cysts minute examination has revealed a very small mass of tumor-growth at some part of the wall.
5. Hence, no case can be classed as a simple cyst unless careful examination of portions from *every* part of the cyst-wall has revealed no tumor-growth.
6. The amount of new-growth may be so minute as to measure only

$\frac{3}{32}$ by $\frac{3}{16}$ of an inch in the wall of a cyst nearly the size of a pigeon's egg (and almost half of this portion may consist of bloodvessels).

7. If the cystic degeneration can be so marked that only a patch of new-growth of the above dimensions is left, it seems not improbable that in some cases the whole of the tumor may disappear and only a cyst remain, or the remaining tumor-growth will be so small as to escape detection.

To the writer the above seems the explanation of the cases in which the cysts are found *only* in the cerebellum. The origin, however, of those exceedingly rare cases of multiple cysts occurring in the cerebrum, cerebellum, and abdominal organs is very obscure. The following are brief abstracts of the notes of the two cases above mentioned. (For the opportunity of observing the cases during life and of making the pathological examination I am indebted to the late Dr. Ross and to Dr. Bury.)

CASE I.—G. B., aged twenty-seven years; admitted as an in-patient at the Manchester Infirmary, January 20, 1891, under the care of Dr. Ross.

Previous history: Fourteen months before admission the patient was first troubled with headache. This was mainly frontal and at the vertex. It gradually increased in severity, and was worse at night. Six weeks before admission his sight began to fail; three weeks before admission he became blind. A staggering gait and tendency to fall (?) forward had been noticed for two weeks before he came to the hospital. He had been troubled with vomiting occasionally during his illness. No syphilitic history. Nothing of importance with respect to previous health and family history.

Present state: Patient badly nourished; complains of frontal headache and loss of sight. He is quite unable to stand; staggers whenever he attempts to do so; ataxia is so marked that it is impossible to say in what direction he tends to fall. When in bed he can perform, though feebly, all the movements of his limbs; no rigidity; knee-jerks and plantar reflexes present; no ankle clonus. No paralysis of facial, ocular, or tongue muscles nor of muscles supplied by the motor branch of the fifth nerve. No anæsthesia or analgesia. Patient is unable to distinguish light and shade; pupils dilated; marked double optic neuritis, with many retinal hemorrhages. Nothing of importance was detected on examination of the other cranial nerves and other organs of the body. The pain in the head became worse. The patient passed into a semiconscious condition; otherwise the symptoms were much the same until his death, about four months after admission. The post-mortem was made by Mr. Taylor, M.A., who kindly gave me the cerebellum and the following notes:

Autopsy.—Permission was obtained for examination of the head only. The membranes of the brain were normal. The floor of the third ventricle formed a cyst-like dilatation just behind the optic chiasma. On section, the third and lateral ventricles were greatly distended with clear fluid. Beyond the results of the distended ventricles nothing abnormal was detected on the examination of the cerebrum. At the lower part of the right lobe of the cerebellum was a large cyst only separated by a thin layer of nerve tissue from the surface. The cyst contained a clear, straw-colored fluid loaded with albumin. No hydatid hooklets nor scolices detected. No signs of hemorrhage. No evidence of cysticercus. No pus cells, no hæmatoidin crystals.

The cerebellum, pons, and medulla were placed in spirit, and given to me for examination. In the right lobe of the cerebellum was a large oval cavity nearly the size of a pigeon's egg, about 1¾ inches in the antero-posterior diameter, by about 1¼ inches in the transverse diameter. It was only separated from the inferior cerebellar surface by a very thin layer of nerve tissue. The interior of this cavity was quite smooth, and its wall appeared to be composed of condensed nerve substance. No *distinct and separate cyst wall* could be detected. At the median side of the superior surface of the cavity was a longitudinal depression running in the antero-posterior direction. At the posterior end of the cyst a small portion of the wall, about the size of a pea, had been removed for examination by Mr. Taylor. Most careful examination of the cyst wall at the spot from which Mr. Taylor had removed the small fragment, and an examination of portions of the cyst wall from all other parts, failed to reveal any evidence of tumor, and I concluded that the case must be one of simple serous cyst. On mentioning the fact to Mr. Taylor he informed me that, at the spot from which he had removed a small piece of the cyst wall, there was a very slight elevation—the slightest sessile projection, on naked-eye examination. He shortly afterward sent me a section of this slight elevation. Microscopical examination showed a very minute patch of tumor growth, the dimensions of which were $\frac{3}{32}$ of an inch by $\frac{3}{15}$ inch. This patch was surrounded by normal cerebellar tissue. The new growth was a very vascular glioma; nearly one-half of this minute mass being composed of dilated bloodvessels. Several small cysts were also present in this minute nodule. On microscopical examination the wall of the cyst appeared to be formed simply of condensed cerebellar tissue; there was no separate cyst wall. Nothing abnormal was detected in the pons and medulla.

CASE II.—Ellen Mc., aged forty-seven years, admitted as an in-patient at the Manchester Infirmary, under the care of Dr. Bury, September 22, 1891.

Previous history: Patient had been troubled with headache and vomiting more or less for two years previous to admission. In February, 1891, symptoms became much worse, and she began to be troubled with a buzzing in the head like the "rushing of water." After a week's rest in bed she improved; but soon began to suffer from attacks of giddiness. For five months previous to admission there had been marked unsteadiness in walking; vomiting had been very troublesome. Several times she had fallen down, owing to vertigo, and at these times the noises in the head had been louder. Patient had been deaf in the right ear since childhood (middle ear disease following measles); for twenty years no discharge from meatus. Deafness had increased very much during last two months. No history of syphilis and no other points of importance in previous history.

State on admission, September 23, 1891: Patient complains of severe headache (especially in the occiput); of deafness and noises in the ears, like the rushing of water; also, of unsteadiness in walking, and vomiting. She is just able to walk without assistance, but only for a short distance. She is very unsteady, and has a tendency to fall backward.

There is no paralysis of the facial, ocular, or tongue muscles. She can perform all the movements of the limbs. The knee-jerks are present; no ankle clonus; no anæsthesia.

Pupils equal, react to light and to accommodation. Vision, R. 6/xxiv, L. 6/xviii.

Ophthalmoscopic examination: Slight optic neuritis both eyes. Margins of both discs slightly blurred; discs slightly swollen and of a grayish-red color; vessels tortuous. Changes more marked in right eye.

Patient is troubled with noises "like the rushing of water" in both ears. No discharge from the ears; considerable deafness. Watch heard at distance of four inches on the left side; not heard in contact with right ear, but heard on contact with the skull above the zygoma. A tuning-fork placed on the vertex is better heard in the right ear than in the left. Examination with the ear speculum: Right tympanic membrane completely destroyed; but the meatus and tympanic cavity quite dry and free from pus. Left membrane retracted. The patient is very dull and stupid. Heart, lungs, and urine present no important abnormalities. There is frequent nausea, retching, and vomiting; breath very offensive.

28*th*. Severe headache. Pain at the occiput and at the back of the neck; at times very intense. It was necessary to discontinue the examination of the patient on several occasions, on account of these paroxysms of pain. When the patient shows her teeth, the naso-labial fold is not so well marked on the right side of the face as on the left.

The optic neuritis has become more marked. There is a small hemorrhage below and to the outer side of the right optic disc. Vomiting not so frequent. Since admission the temperature has been between 97° and 98°, except on one occasion, when it rose to 98.4°. Patient fell asleep in the evening, but was found dead in bed at 4 A.M., next morning.

Autopsy (Abstract).—No changes of importance were met with in any of the organs of the thorax or abdomen. Skull-cap and dura mater normal. On removing the brain a thin, translucent membrane, evidently the lower wall of a cyst, was seen at the inferior surface of the right lobe of the cerebellum. On cutting into this membrane it was found that the right lobe of the cerebellum was occupied by a large cyst containing clear straw-colored fluid. The inferior wall of the cyst bulged, and anteriorly came almost in contact with the right facial and auditory nerves (brain lying after removal with base upwards). During life it is very probable that the cyst did press on these nerves.

No evidence of tumor growth could be seen, and the cerebellum was placed in Müller's fluid for further examination. In the contents of the cyst there were no hydatid hooklets, blood-corpuscles, pus cells, or hæmatoidin crystals; also, there was no evidence of cysticercus cellulosæ. The fluid contained a large amount of albumin. The rest of the brain was normal. Base of skull normal. There were no cysts in any other part of the body.

After hardening in Müller's fluid the cerebellum was dissected. The cyst cavity was about the size of a walnut; it was roughly oval in shape, the long axis being in the antero-posterior direction. The wall of the cavity was smooth, except anteriorly, where there were a few slight irregularities. There was no separate cyst wall, the cavity appearing to be bounded only by condensed cerebellar tissue (as was afterwards confirmed by microscopical examination). Near the posterior part of the superior wall (roof) of the cavity was a small opening a little larger than a pin's-head. This was seen to lead into a second small, flattened, smooth-walled cavity, just above (superior to) the one described.

To the naked eye no evidence of tumor could be detected at any part of the cyst wall, and the cyst appeared to be a simple serous one.

Careful microscopical examination of portions taken from various parts of the cyst wall appeared to confirm this opinion. But after prolonged search a small nodule of cystic glio-sarcoma, about the size of a pea, was found at the anterior end of the cyst wall. The nodule was $\frac{4}{16}$ of an inch in diameter (6 mm).

As above mentioned, cases of cerebellar tumor, cystic tumors, and so-called serous cysts present the same symptoms during life, and hence differential diagnosis is impossible.

In the case of a cerebellar cyst, in the wall of which there is either no new growth or only a small fragment, it is possible that if the cyst could be punctured and drained like an abscess, temporary or permanent benefit might follow. A small nodule of glioma in the wall might shrivel up after the cyst was drained.

A case is recorded in the *Berliner klinische Wochenschrift* (July 28, 1890), by Oppenheim and Koehler, of paralysis of the left side of the face and total paralysis of the left arm, with diminution of sensibility. There was a history of Jacksonian epileptic attacks preceding the paralysis, which had come on gradually. An operation was performed, and a cystic cerebral tumor (glioma) was found in the right motor area of the cortex. The contents of the cyst (clear yellowish fluid) were evacuated and only the superficial part of the growth removed, and the cavity drained. Rapid improvement occurred. The movements of the left arm became almost normal, and the patient was discharged from the hospital, well, three months after the operation.

As above mentioned, cystic degeneration is much more frequent in cerebellar tumors than in tumors at other parts of the brain. Hence, in a given number of cases, presenting during life symptoms of cerebellar tumor, the lesion in a considerable number—though, of course, in a minority—will be of a cystic nature; either a cystic tumor or a cyst, in the walls of which only a small fragment of tumor or no new-growth whatever is present.

Hitherto operations for the *removal of cerebellar tumors* have been extremely unsuccessful. It is worth considering, however, whether it might not be justifiable, in *some* cases presenting symptoms of cerebellar tumor, to trephine the skull, and puncture the cerebellum with a fine hypodermic needle, in the hope that the lesion is one of the cystic conditions just mentioned; and if fluid were obtained, to drain and treat as an abscess. This, of course, could only be thought of—after the failure of medical treatment—in cases the history and symptoms of which rendered a tubercular or syphilitic tumor improbable, preferably in cases in which there was some indication of the side affected. It would only be in the cases of cyst, cystic glioma, and glio-sarcoma (cystic sarcoma?), that there would be any probability of success. But as trephining and puncture with a fine hypodermatic exploring needle (under strict antiseptic precautions) would not be a very formidable procedure, and as the cases are otherwise hopeless, it does not seem very objectionable. In the majority of cases the growth would be solid; but with strict antisepsis probably no grave results would follow. In a minority of cases, however, *the lesion would be cystic* (one of the forms above mentioned); if such were found to be the case, drainage, as in Oppenheim and Koehler's patient, might be followed by good results. The prospects of success, of course, are slender; but, as otherwise the cases are hopeless, the above appears to be a point worthy of attention, when one remembers that lesions of a cystic nature have been found in the cerebellum in a considerable number of cases. The rare cases in the cyst wall of which there happened to be only a small fragment of tumor growth, or no new-growth whatever, would be most hopeful.

THE TREATMENT OF ACUTE DYSENTERY BY ANTISEPTIC RECTAL AND COLON IRRIGATION.[1]

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The history of the rectal treatment of dysentery is a very interesting one, but I must resist the temptation to enter upon it. It dates back to the Egyptians, Greeks, and Romans, and had alternations of a century of favor followed by centuries of disfavor and abuse. The ancients employed it for the removal of "acrid humors," which, they thought, by their retention intensified the inflammation, and to this same idea have we come again with the help of fifty years of microscopic and chemical study. Coming down to recent years there is one period in the history of this treatment to which I must refer.

Irrigation with Cold and Warm Water.—It is a matter of some interest to *us*, that a physician of the neighboring and historic town of Bladensburg was the first to recommend cold-water injection in dysentery. In the *Edinburgh Journal of Medicine*, in 1826, Dr. Joseph Kent, of Bladensburg, wrote that since 1823, he had employed ice-water injections for dysentery at half-hour intervals, "speedily

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[1] Read before the Association of American Physicians at Washington, May, 1892.